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ACE Assessments in Career Education

Guide for Teachers

Agricultural Core

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2002

Introduction

About This Guide

The *Assessments in Career Education* (ACE) *Guide for Teachers* has been developed to provide essential information and preparation guidelines for teachers. The intent of the guide is to serve as an instructional aid in the classroom. The guide is divided into eleven sections:

Background — describes the purpose of the ACE program.

Key Dates for ACE 2001–2002 — describes the timeline for ACE participation.

Test Content and Standards — describes the content standards upon which the ACE examinations are based.

Test Structure — describes the general format of the test.

Test Preparation — includes strategies for preparing students for taking an ACE examination, including written-response questions.

Achievement Levels — describes the six different levels of achievement.

Sample Questions — includes sample multiple-choice questions and a sample written-response question.

General Scoring Criteria — shows the general criteria used to develop specific scoring guides for written-response questions.

Sample Student Work — includes examples of student work for the sample written-response question at different score points with commentary.

Recognition Program — provides suggestions for how to recognize students for outstanding achievement.

ACE Brochure — a reproducible master for teachers, students, parents, and the community that describes the ACE program.

Teachers are encouraged to reproduce portions or all of the guide for classroom use.

Student Eligibility

The ACE in Agricultural Core may be taken by a student only one time. For this reason, it is important for students to take the examination when they are fully prepared. Prior to taking the examination, students should complete the appropriate coursework that provides instruction in all of the standards covered by the examination. For example, students enrolled in a two-year agricultural core program should wait until the end of their second year to take the ACE in Agricultural Core.

Background

The ACE program, patterned after the well-established Golden State Examination program, is designed to recognize students who demonstrate outstanding achievement on rigorous examinations in selected career-technical areas. All examinations are based on California career education standards. The standards for Agricultural Core are included in this guide on pages 3–7.

Participation in the ACE program is voluntary; it is offered at no cost to public school students, schools, or districts. It provides an invaluable opportunity for students to demonstrate both career-technical and academic skills on a statewide examination. Outstanding achievement on the ACE examination benefits students in at least three ways:

- Students receive three types of formal recognition from the State of California for their achievement in a career-technical area.
  - state award of ACE Academic Excellence
  - honor roll banner for display at school
  - letter to state legislators announcing individual student success
- Students are better prepared for successful transition to work or higher education in their career field.
- Students establish a record of accomplishment that is valued by potential employers and post-secondary schools through the following:
  - official notation on school transcript
  - ACE insignia on high school diploma for recipients of honors and high honors recognition

The first ACE examinations were given in 1997. In 2002, the following five content areas are covered:

- Agricultural Core
- Computer Science and Information Systems
- Food Service and Hospitality
- Health Care, Level I
- Technology Core

Teacher experts, industry representatives, college and university professors, and other related specialists develop questions for the ACE examinations. Test items are reviewed and field-tested to ensure that the test content reflects the industry-accepted model curriculum standards for each career area. The test questions also undergo thorough content, community, and technical reviews to ensure that the examinations provide reliable, valid, and fair results.

Key Dates for ACE 2001–2002

By reading this guide, you have already begun the first step toward your students' successful participation in the ACE program. Because ACE is a voluntary assessment, teachers must actively express an interest in participation. By using the following timeline, you can facilitate your district and/or ROCP office in ordering, delivering, and returning examinations.

	What happens	What to do
October–December 2001	ACE Guides for Teachers go online at www.cde.ca.gov/statetests/ace. Results are sent to districts.	Find out who your ACE coordinator is at the district level. Promote ACE locally to students, parents, and community. Excite students about the opportunity. Honor students from the previous year who received outstanding achievement. Display Honor Recognition banner. Distribute results to ACE students. Send announcements to local newspaper.
January 2002	ACE registration materials sent to Districts and/or ROCP Coordinators.	Follow up with your site/district administrator if you do not receive registration materials.
March	ACE registration materials are due from your district and/or ROCP to the California Department of Education's testing contractor. Your information tells us how many tests to print and send to you.	Make sure registration materials have been returned.
April	ACE examinations are sent to your district and/or ROCP office for distribution to school sites.	Follow up with your site/district administrator if tests are not received by the end of April.
May	ACE examinations are given during the month of May and must be returned to your site administrator and district/ROCP office by June 5.	Follow up with your site administrator to confirm test materials have been returned.
June–July	ACE examinations are scored by teams of experts. You might be interested in joining the team.	This is a paid opportunity for you to see how students responded to the questions, get to know other teachers in your content area from around the state, and participate in an invaluable professional development opportunity. Call Sacramento County Office of Education at (916) 228-2662 for more information.
October–November	Results from previous spring administration of the ACE examinations are sent to schools through districts and/or ROCP offices.	Check with your district and/or ROCP periodically for arrival of the results and the related recognition materials.

For test security, examinations are sent to an assessment/program coordinator at the district and/or ROCP office. This person often coordinates many other examinations as well. Find out early in the school year who this person is for your district and/or ROCP. Work with your site administrator to develop a communication system about ACE so that information and materials are efficiently received by career-technical teachers and returned to your district and/or ROCP office.

Beyond key dates and communications support system for successful test administration, you will want to prepare your students to be successful on the ACE examination. The rest of this guide is devoted to assisting you in that effort.

Test Content and Standards

The content standards covered by the ACE 2002 in Agricultural Core are provided below.

Test Content

The ACE in Agricultural Core is based upon the knowledge and skills defined in the *Agriculture Content Standards Grades 9–12*.

Standards

The Basic Core curriculum in agriculture is designed to provide a fundamental background in agriculture for beginning agriculture students in California and to act as a foundation for the more in-depth curriculum in the advanced clusters. Depending on the degree of local enhancement, individual teaching strategies, and high school district policies the Basic Core curriculum may be completed in one to two years.

1. Basic Core

1.1 Agriculture & Society

Students will develop an awareness of the interrelationship of California agriculture and society on the local, state, national and international levels, and will discuss the economic impact of leading commodities.

Examples of types of work students should be able to do to meet the standard.

1.1.1 List five agricultural commodities exported from California and the U.S. and explain the economic importance of each.

1.1.2 List five agricultural commodities imported to California and the U.S. and explain the economic importance of each.

1.1.3 Identify and explain the importance of five agricultural commodities produced in their county, in California and in the U.S.

1.1.4 Explain the relationship of the development of agriculture to the development of civilization and modern society in the U.S. (i.e. diversification of labor, development of trade, mechanization, and land use.)

1.2 Agriculture and the Environment

Students will understand the interrelationship of modern agriculture and the environment, focusing on water, land, and other natural resources in California. Students will explain how natural resource availability affects agriculture.

Examples of types of work students should be able to do to meet the standard.

1.2.1 Describe the environmental impacts of agriculture on water, soil and air.

1.2.2 Describe the environmental challenges of urban sprawl, decline in water quality, and concerns over chemical use for agriculture.

1.2.3 Explain the importance of agriculturists as stewards of our natural resources.

1.3 Agriculture Business and Technology

Students will understand the importance of agriculture firms and technology with regard to the production, processing, servicing, purchasing and marketing of agriculture products.

Examples of types of work students should be able to do to meet the standard.

1.3.1 Explain the flow of an agricultural commodity from the producer to the consumer.

1.3.2 Explain the effect technology has had on agriculture (i.e. labor, production efficiency, product diversity and availability, mechanization, and communication.)

1.3.3 Explain the functions of production, processing, servicing and marketing in agriculture.

1.4 Record Keeping

Students will understand the importance of keeping accurate records and explain the consequences of inaccurate records. Students will maintain and complete the California Agricultural Record Book which pertains to their Supervised Occupational Experience (SOE) Program.

Examples of types of work students should be able to do to meet the standard.

1.4.1 Explain reasons for keeping accurate records and consequences of inaccurate records.

1.4.2 Develop a budget and a business agreement for a project.

1.4.3 Complete journal entries for two enterprises and carry entries forward to the next month.

1.4.4 Prepare a financial statement and a net income summary.

1.4.5 Complete non-depreciable and depreciable property inventories.

1.4.6 Use the straight-line method for determining depreciation.

1.5 Computer Literacy

Students will understand the importance of computer literacy as it pertains to agriculture.

Examples of types of work students should be able to do to meet the standard.

1.5.1 Describe three examples of computer applications in agriculture.

1.6 Interpersonal Leadership Development

Students will develop a basic understanding of the FFA, recognize the traits of effective leaders and participate in leadership training activities associated with the FFA, which may include public speaking, leading group discussions, working within a committee, conducting business meetings, and problem solving.

Examples of types of work students should be able to do to meet the standard.

1.6.1 Explain the benefits of FFA membership.

1.6.2 Describe and explain leadership skills developed by participating in FFA.

1.6.3 Demonstrate the use of five parliamentary procedure skills.

1.6.4 Demonstrate the ability to cooperate and collaborate by serving on a committee.

1.6.5 Make an oral presentation.

1.6.6 Demonstrate the process of solving a problem by identifying the problem, proposing solutions, gathering information, testing and evaluating solutions.

1.7 Projects

Students will understand the relationship between a supervised occupational experience (SOE) and their preparation for a career in agriculture. Students will actively engage in and manage a SOE which enables them to develop occupational skills.

Examples of types of work students should be able to do to meet the standard.

1.7.1 Develop an agricultural SOE plan (student data sheet).

1.7.2 Demonstrate responsibility, commitment, and time management skills by conducting and maintaining and SOE.

1.8 Careers and Employability in Agriculture

Students will be aware of existing and future employment opportunities in the field of agriculture and will develop an understanding of how to conduct a job search, write a resume, and interview for a job.

Examples of types of work students should be able to do to meet the standard.

1.8.1 Describe the six agriculture career clusters and give examples of entry, technical, and professional careers in each cluster.

1.8.2 Develop a resume and participate in a mock job interview.

1.8.3 Utilize resources to learn about an agriculture occupation of their choice.

1.9 Measurement

Students will be able to read and use measuring equipment, and perform calculations for problem solving.

Examples of types of work students should be able to do to meet the standard.

1.9.1 Measure to within 1/16th of an inch.

1.9.2 Calculate area and volume when given dimensions.

1.10 Tool Use and Safety

Students will understand the operating principles of common tools used in agriculture and will understand the principles of safety that apply to them.

Examples of types of work students should be able to do to meet the standard.

1.10.1 Identify commonly used tools.

1.10.2 Select and justify the tools appropriate for a given project.

1.10.3 Explain safety procedures in the use of hand and power tools.

1.11 Domestic Animals and Society

Students will understand the importance of animals, their domestication, and role in modern society. Students will explain the care and uses of domesticated livestock in society.

Examples of types of work students should be able to do to meet the standard.

1.11.1 Explain the difference between domesticated and non-domesticated animals.

1.11.2 Describe proper care of domesticated animals to insure their welfare and productivity.

1.11.3 Compare and contrast the evolution and uses of domestic animals.

1.12 Major Body Systems

Students will understand the anatomy of the major body systems. Students will explain the major functions of the digestive, reproductive, circulatory, nervous, muscular, skeletal, respiratory, and endocrine systems.

Examples of types of work students should be able to do to meet the standard.

1.12.1 Compare and contrast the basic parts and functions of monogastric and ruminant digestive systems.

1.12.2 Label the basic parts and describe the functions of male and female reproductive systems.

1.12.3 Identify the major body systems that compose the vertebrate: digestive, reproductive, circulatory, nervous, muscular, skeletal, respiratory, and endocrine.

1.12.4 Give example of the major components of each system.

1.12.5 Compare and contrast the structures of plant and animal cells.

1.12.6 Compare and contrast the major external body parts of a bovine, porcine and avian animal.

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* This standard is not addressed on the ACE 2002 examination.

1.13 Animal Genetics

Students will understand the basic theory of inheritance, the genetic basis for animal selection, the process of fertilization, and the processes of meiosis and mitosis. Students will explain and/or diagram these concepts and processes.

Examples of types of work students should be able to do to meet the standard.

1.13.1 Describe the difference between genotype and phenotype and dominant and recessive genes with the assistance of the Punit Square.

1.13.2 Describe the process of fertilization.

1.13.3 Diagram and label the process of meiosis to form sperm and ova, and the process of mitosis.

1.14 Animal Nutrition

Students will understand the factors influencing animal nutrition and feeding. Students will identify common feed ingredients and will explain the uses of different feeds for particular animal species.

Examples of types of work students should be able to do to meet the standard.

1.14.1 List six classes of nutrients and their functions.

1.14.2 Choose and justify the type of feeds suitable for the digestive system of ruminant, monogastric and avian species.

1.14.3 Explain how production processes, stage of development, costs and availability of feeds dictate their selection.

1.14.4 Describe basic guidelines for animal feeding.

1.15 Animal Health

Students will identify general symptoms of animal health problems and will understand the causes of disease in domestic animals. Students will recognize a sick animal, describe its symptoms and recommend treatment.

Examples of types of work students should be able to do to meet the standard.

1.15.1 Describe the appearance and behavior of a normal, healthy animal.

1.15.2 List the major factors affecting animal health (housing, sanitation, nutrition).

1.16 Soil Science and Principles

Students will understand the role of soil, water and fertilizer in plant production.

Examples of types of work students should be able to do to meet the standard.

1.16.1 Describe the major components of soil (air, water, organic material and minerals).

1.16.2 Explain the relationship of soil characteristics to plant growth (soil texture, structure, pH and salinity).

1.17 Plant Physiology and Functions

Students will understand the requirements for plant growth and development. Students will identify and explain the functions of plant systems and structures.

Examples of types of work students should be able to do to meet the standard.

1.17.1 Identify the major components for plant growth (air, water, heat, light, soil).

1.17.2 Explain the functions of the root, leaf, stem, fruit, and flower.

1.17.3 Explain the process of photosynthesis and its importance to life.

1.17.4 Describe the life cycles of annual, biennial, and perennial plants.

1.17.5 Compare and contrast the structures of plant and animal cells.

1.18 Pest Management in Plant Production

Students will understand the importance of pest management in plant production. Students will explain the major principles of integrated pest management.

Examples of types of work students should be able to do to meet the standard.

1.18.1 Explain how insects, weeds, disease and vertebrate pests affect plant production.

1.18.2 Define IPM, discuss its advantages and disadvantages.

1.18.3 Describe chemical, mechanical, cultural and biological methods of controlling insects, weeds, and disease.

1.19 Natural Resources

Students will be aware of the major natural resources used in agriculture. Students will discuss major issues related to the use of these natural resources.

Examples of types of work students should be able to do to meet the standard.

1.19.1 Describe how natural resources are used in agriculture.

1.19.2 Describe major issues related to water sources and water quality.

1.19.3 Compare and contrast practices for conserving renewable and non-renewable resources.

Resource Documents

Copies of the *Agriculture Content Standards Grades 9–12* are available from the Agricultural Education Tech Preparation Consortium, Stanislaus County Office of Education, 801 County Center Three Court, Modesto, CA 95355, (209) 525-5020.

Test Structure

The ACE in Agricultural Core is administered in two 45-minute sessions. Each session consists of multiple-choice questions and a written-response question.

The purpose of the multiple-choice questions is to assess students' knowledge in agricultural core. The multiple-choice questions vary in complexity. Some require students to apply concepts to solve problems. This portion of the examination is machine scored. Sample questions are provided on page 13.

The written-response questions are designed to measure students' application of skills and knowledge. Students respond in writing to questions about career-related situations. The written-response questions are scored by agricultural core teachers and other professionals in the career area. Students are awarded a score point from one to four for each question, with four being the highest score. The sample multiple-choice and written-response questions, general scoring criteria, and sample student work and commentary are provided on pages 13–16.

Test Preparation

Students should have a firm foundation in the essential skills needed for success in the career area tested. Sound preparation for ACE is built on classroom assignments that allow students to use and test their skills and knowledge regularly.

Students preparing for the examinations need to be able to articulate the major concepts in the career area being assessed. They must be able to analyze information, apply knowledge, solve problems, and explain their solutions.

Preparing Students for Written response Questions

Using the sample written-response question in this guide (page 13):

- discuss the wording of the sample written-response question. Help students to identify and understand the key requirements of the question (i.e, what is being asked?).
- review the general scoring criteria (page 14) with students. This will help students better understand what is expected of them.
- discuss the student work samples. Focus on the differences between the score points.

In addition:

- plan a variety of classroom activities that require students to interpret, think through, and answer written-response questions. For example:
  - define and explain terms that are common in written-response questions (e.g., "in detail," "fully," "list" vs. "describe" vs. "explain").
  - model processes for "thinking through" and outlining answers to written-response questions.
  - model processes for incorporating details into answers to written-response questions.
- provide students with many opportunities to practice writing (e.g., through homework assignments, in-class projects, and classroom assessments).
- involve students in developing written-response questions and scoring guides related to content covered in your curriculum.
- have students evaluate their own answers to written-response questions, as well as the answers of their peers, using a scoring guide. Encourage students to discuss strategies for improving their own and others' work.
- allow students to revise/improve their answers to written-response questions, based on your feedback and/or the feedback of their peers.

As an instructor:

- when you help prepare your students for the written portion of the ACE examination, you are also helping them to become better writers.
- keep in mind that you can help improve your students' writing as you engage them in writing about real-world activities.
- resources at your school that are available to help enhance your students' writing skills include:
  - the *English-Language Arts Content Standards for California Public Schools* adopted by the California State Board of Education (http://www.cde.ca.gov/board), in particular, the sections entitled "Writing" and "Writing and Oral English Language Conventions."
  - any writing initiatives currently being implemented at your high school.
  - the language arts and English language learner instructors at your high school and/or in your career cluster.

Test-taking Strategies

Several test-taking strategies may be helpful to students during an ACE examination.

When answering multiple-choice questions, students should:

- read the directions carefully.
- generate their own idea of the most accurate answer to a question before selecting from the answers provided.
- pace themselves by considering the number of questions and the time allowed.

When answering written-response questions, students should:

- read and understand all parts of the question.
- underline the key requirements of the question.
- think quickly of the main ideas that will serve as a framework for their response.
- briefly outline the main ideas in a logical sequence before responding.
- respond to all parts of the question.
- provide accurate, clear, and detailed examples that demonstrate their knowledge of the career-area topic covered.
- check their work when finished to make sure they have responded to all required components of the question.

The following is an example of the general directions that precede a written response item on the ACE in Agricultural Core. You may want to use the same general directions when developing your classroom assessments.

Directions:

- Carefully read the question below. You will have 15 to 20 minutes to respond. Your written response should cover all parts of the question and should contain all examples requested.
- Plan your response before you begin writing, using the space at the bottom of this page.
- Allow time to review and proof read your work and to make any revisions or corrections. Your response will be evaluated on the completeness and correctness of your answer, your understanding of relevant concepts, and your skills in expressing yourself clearly.
- Write your response on pages ____ through ____ of your answer document. Writing that appears on this planning page or any other scratch/drawing paper will not be scored.

Achievement Levels

Scores from the multiple-choice and written-response portions of the examination are combined to produce the student's overall achievement level. There are six achievement levels. Students who achieve level six are awarded high honors; those who achieve level five are awarded honors; and those who achieve level four are awarded recognition. Students who achieve level three or below are acknowledged for their participation.

Level 6

The student has demonstrated excellent knowledge, understanding, and application of the content and concepts of agriculture core. The responses:

- show excellent knowledge and understanding of facets of modern California agriculture, including agricultural business management, animal science, plant and soil science, agricultural mechanics, and natural resources.*
- demonstrate excellent use of problem-solving and critical-thinking skills in modern agriculture contexts.
- show outstanding knowledge of leadership skills and their relationship to employability.
- show excellent understanding of the skills and attributes necessary for success in tomorrow's work force in agriculture.

Level 5

The student has demonstrated strong knowledge, understanding, and application of the content and concepts of agriculture core. The responses:

- show substantial knowledge and understanding of facets of modern California agriculture, including agricultural business management, animal science, plant and soil science, agricultural mechanics, and natural resources.*
- demonstrate very good use of problem-solving and critical-thinking skills in modern agriculture contexts.
- show strong knowledge of leadership skills and their relationship to employability.
- show substantial understanding of the skills and attributes necessary for success in tomorrow's work force in agriculture.

Level 4

The student has demonstrated solid knowledge, understanding, and application of the content and concepts of agriculture core. The responses:

- show good knowledge and understanding of facets of modern California agriculture, including agricultural business management, animal science, plant and soil science, agricultural mechanics, and natural resources.*
- demonstrate good use of problem-solving and critical-thinking skills in modern agriculture contexts.
- show solid knowledge of leadership skills and their relationship to employability.
- show good understanding of the skills and attributes necessary for success in tomorrow's work force in agriculture.

Level 3

The student has demonstrated basic knowledge, understanding, and application of the content and concepts of agriculture core. The responses:

- show basic knowledge and understanding of facets of modern California agriculture, including agricultural business management, animal science, plant and soil science, agricultural mechanics, and natural resources.*
- demonstrate some use of problem-solving and critical-thinking skills in modern agriculture contexts.
- show some knowledge of leadership skills and their relationship to employability.
- show basic understanding of the skills and attributes necessary for success in tomorrow's work force in agriculture.

Level 2

The student has demonstrated limited knowledge, understanding, and application of the content and concepts of agriculture core. The responses:

- show limited knowledge and understanding of facets of modern California agriculture, including agricultural business management, animal science, plant and soil science, agricultural mechanics, and natural resources.*
- demonstrate limited use of problem-solving and critical-thinking skills in modern agriculture contexts.
- show limited knowledge of leadership skills and their relationship to employability.
- show incomplete understanding of the skills and attributes necessary for success in tomorrow's work force in agriculture.

Level 1

The student has demonstrated little or no knowledge, understanding, and application of the content and concepts of agriculture core. The responses:

- show little or no knowledge and understanding of facets of modern California agriculture, including agricultural business management, animal science, plant and soil science, agricultural mechanics, and natural resources.*
- demonstrate little or no use of problem-solving and critical-thinking skills in modern agriculture contexts.
- show little or no knowledge of leadership skills and their relationship to employability.
- show little or no understanding of the skills and attributes necessary for success in tomorrow's work force in agriculture.

* A detailed description of the content covered by the ACE in Agricultural Core can be found on page 3–7.

Sample Test Questions

Sample Multiple-choice Questions

1. Which provides the essential nutrients in the proper proportions to nourish an animal for a 24-hour period of time?

   A. balanced ration

   B. ration

   C. roughage

   D. local digestible nutrients

2. Taking a portion of a stem from a plant to grow a new plant is an example of

   A. asexual reproduction.

   B. sexual reproduction.

   C. cross-pollination.

   D. self-pollination.

ANSWER KEY: 1. A 2. A

Sample Written-response Question

You want to plant an orchard located in an arid region of California with gentle rolling hills.

- Identify **three** methods of irrigation.
- Give an advantage and a disadvantage for each of the three methods.
- Select the best irrigation method for the orchard described above and explain why you made this choice.

What Students Are Expected to Accomplish

This written-response question is designed to assess students' general knowledge of irrigation systems and their skill in selecting an appropriate method of irrigation for land with a particular set of characteristics. In this case, it is an orchard on gentle rolling hills in an arid region of California. Students are expected to select either sprinkler irrigation or drip irrigation as the "best" method of irrigation for the orchard, and to support their choice with an explanation that addresses (at minimum) how both terrain and efficiency influenced their selection. Additionally, responses are expected to be well organized and clearly and effectively written.

General Scoring Criteria for Written-response Questions and Problem-solving Tasks

The general criteria for each score point are outlined below. These criteria are used to develop scoring guides that address the specific content in each written-response question or problem-solving task.

Score Point 4

Student response shows **excellent** knowledge and understanding. The response:

- completes all components of the question correctly.
- demonstrates in-depth understanding of relevant concepts.
- conveys knowledge coherently and effectively.

Score Point 3

Student response shows **substantial** knowledge and understanding. The response:

- completes all or most components of the question correctly.
- demonstrates understanding of relevant concepts; may overlook or misunderstand less important ideas.
- conveys knowledge clearly.

Score Point 2

Student response shows **partial** knowledge and understanding. The response:

- completes some important components of the question correctly.
- overlooks or misunderstands relevant concepts.
- conveys knowledge in a manner that may lack clarity.

Score Point 1

Student response shows **little or no** knowledge and understanding. The response:

- attempts to address important component(s) of the question but may do so incorrectly.
- demonstrates little or no understanding of relevant concepts.
- conveys knowledge in a manner that may lack clarity or focus or may impede understanding.

Sample Student Work

Score Point 4

There are a few different irrigation methods that a crop producer may consider when planning an operation. What method is chosen depends greatly on the gradient and water availability on the plot of land, and what type of crop is being produced.

One method is sprinkler irrigation. This may be with wheel lines, ground pipe, or overhead sprinklers. This is great for flat or slightly sloped fields, and crops that need careful water management. You can move the water to any area necessary, but it does require more expense and time than other methods. Not only is there the cost of a pump, but also for the sprinkler equipment.

Another method is flood irrigation. On a slightly sloped land plot, this is very effective. Crops such as rice and taro require water 6" or deeper to grow in. However, for certain types of slopes this may cause undesired erosion, so special measures must be taken to control erosion.

A third method is sub-irrigation. This is when a water system is installed which keeps water (moisture content) at the optimum level below ground — sub-soil. This is good in areas where there is a good water supply and with deep root crops. However, this is not a preferred method of irrigation with any type of crop besides deep-rooted, such as alfalfa. Otherwise, it is ineffective. Water must be available below the soil surface.

The method of irrigation I recommend for an orchard on rolling hills is sprinkler irrigation. Flood irrigation is out of the question because I would lose my topsoil in a year, and hills do not usually have sufficient water sources at sub-soil depths.

With a sprinkler system on the ground, laid out between trees, I could water above soil without much labor. (I could not use wheel lines, since they would be near-impossible to move between rows.) I could keep the surface of the soil damp, since there is not much rainfall in this area.

Commentary

The response correctly identifies three different methods of irrigation (i.e., sprinkler, flood, subirrigation) and fully describes one advantage and one disadvantage for each method. An appropriate "best" method of irrigation for the orchard (i.e., sprinkler) is selected, and an explanation to support the choice is provided. The response demonstrates an excellent understanding that both terrain and efficiency (among other factors) are important considerations when selecting an appropriate method of irrigation. The knowledge is conveyed coherently and effectively.

Sample Student Work

Score Point 3

If I wanted to plant an orchard located in an arid region of California with gentle rolling hills, I could use many different methods of irrigation. One would be flooding because it would soak in. One disadvantage would be, it would all go into the valley parts of the hills and not stay on the hills, one advantage would be that the orchard part in the valleys will survive easily. Another type of irrigation is sprinklers and one disadvantage is that it may miss a spot or two and that stuff could dry up, and one advantage is that it does the job fairly evenly. The best method of irrigation, I think, would be drip irrigation one, because it would get to every spot and not give one spot more than the other, but a disadvantage is that it's expensive, so not every farmer person can buy it and make it.

Commentary

The response correctly identifies three different methods of irrigation (i.e., flood, sprinkler, drip) and describes, in more general terms, one advantage and one disadvantage for each method. An appropriate "best" method of irrigation for the orchard (i.e., drip) is selected and an explanation to support this choice is provided. The explanation is somewhat limited (i.e., addresses efficiency, but does not clearly address how terrain influenced the selection of an appropriate irrigation system for the orchard). The knowledge is conveyed relatively clearly.

Score Point 2

Three methods of irrigation are flood, drip and sprinklers. The advantages and disadvantages of these methods are that to flood a hill is a disadvantage, because it would just run off the hill, there is no advantage. The advantage for drip is that the plant will get directly watered, the disadvantage for drip is that the water could run off the plant. The advantage for sprinklers is that it waters everywhere. The best method of irrigation for the orchard is the drip, because it will water each plant.

Commentary

The response correctly identifies three different methods of irrigation (i.e., flood, drip, sprinkler) but does not describe both an advantage and disadvantage for each method. An appropriate "best" method of irrigation for the orchard (i.e., drip) is selected and an explanation that supports the choice is provided. The explanation lacks clarity and development.

Score Point 1

The best method for irrigation is a drip sistem, a drip system is easy to control and is very cheep, and dos not use much water. This is good because I want to save as much water as posoble.

Commentary

The response correctly identifies only one method of irrigation (i.e., drip). The method would be appropriate for the orchard. Several advantages of drip irrigation are listed, but a disadvantage is not provided. The response shows little or no knowledge of different irrigation methods.

Recognition Program

After an achievement level for each student is determined on the basis of their combined multiple-choice and written response scores, results are sent to you through your district/site office. You will receive your results in the fall (October–November). The results/recognition packet that comes to your school site should include:

1. student reports
2. school bulletin board display
3. ACE awards recipient lists
4. school summary reports
5. certificates of achievement
6. honor insignias
7. record of achievement levels

The intended purpose of the ACE examination is to honor students who have earned recognition for their achievement. There are no negative consequences for students who do not achieve in the top three levels. Programs receiving funding from Carl Perkins may use participation in ACE as one of their multiple measures of accountability.

Ideas for promoting ACE and honoring students:

- include ACE information at back-to-school night.
- provide ACE brochures to the counseling office.
- write news articles for your school newsletter or newspaper about career-technical education and the ACE examination.
- inform students and their parents early in the year about the ACE test and its recognition program.
- ask your principal/superintendent to write a congratulatory letter to each ACE achievement recipient shortly after results are released.
- ask your principal/superintendent to submit a news release to the local newspaper about your ACE award recipients.
- announce award recipients at a school assembly or special awards program.
- work with your school board, community partners, and local businesses to recognize and honor students.

How To Get Involved

Students:
Don't miss out on an opportunity to prepare for your future and earn special recognition for academic achievement in career-technical education. Distinguished performance on an ACE examination will build your self-confidence. It will enhance your resume and applications for work and college. Check with your school counselor early in your high school career to see if coursework leading to an ACE examination is offered at your school.

Parents:
Your teenager will benefit from participating in this program. Encourage your teen to enroll in career-technical education courses and to take the related ACE examination. Career preparation is for ALL students. It prepares them for work and college. The ACE exam recognizes student achievement and enhances resumes and applications for work and post-secondary education. Graduates receiving honors on the ACE exam are better prepared to enter the work force or to enter college and pursue their selected career path.

Teachers/ROCP Directors/ Administrators:
Help your students achieve. If career-technical education programs are taught at your school and your coursework is aligned to the career preparation standards, register your students to take the related ACE examination. Registration forms may be obtained through your district office or ROCP in January. There is no cost to your school or district for administering the ACE examination. The examination is administered at your school site.

Teachers are encouraged to participate during the summer by scoring ACE examinations. Their expertise is vital to the scoring process; it is also a rewarding professional growth experience.

Employers:
Be sure to look for ACE recognition on student resumes. Recognition on an ACE examination in a specific career area indicates a high level of achievement in acquiring the knowledge and skills necessary for an entry-level position and further advancement.

Students who receive ACE honors have a head start as they enter the workforce and continue on a career path.

For More Information

Standards and Assessment Division
California Department of Education
Telephone (916) 657-3011 Fax: (916) 657-4964
www.cde.ca.gov/statetests/ace e-mail: star@cde.ca.gov

12/5/01

Assessments in Career Education

A Bridge Between School and Career

California Department of Education

The ACE Examination

The Assessments in Career Education (ACE) program offers end-of-course examinations that recognize students who demonstrate outstanding achievement in selected career-technical areas. Recognition on this examination provides a record of student achievement for resumes, transcripts, and applications for jobs and post-secondary education. The ACE program helps to bridge school and work.

ACE examinations, based on Career Preparation Standards*, are offered in the following areas:

Agricultural Core
(Agriculture Education)

✦

Computer Science & Information Systems
(Business Education)

✦

Health Care, Level 1
(Health Careers Education)

✦

Food Service and Hospitality
(*Home Economics Careers & Technology Education)*

✦

Technology Core
(Industrial and Technology Education)

* Challenge Career Preparation Standards:
www.cde.ca.gov/challenge/Contents.html

Patterned after the Golden State Examination program, an ACE examination consists of two, 45-minute sessions. Each examination includes multiple-choice questions and written-response questions as well as problem-solving tasks.

Registration for ACE examinations begins in January. The examinations are given in May of each year.

Eligibility & Preparation

To be eligible to take the examination, students must complete a career-technical course or sequence of courses that provide instruction related to all aspects of the subject area standards covered by the examination. Because students may take the ACE examination only one time, it is essential that they are well-prepared. To prepare for ACE, students should:

- practice responding in writing to questions and problem-solving tasks in their classes.
- review sample test questions and student work that are in the ACE Guides for Teachers posted on the Internet:
  www.cde.ca.gov/statetests/ace

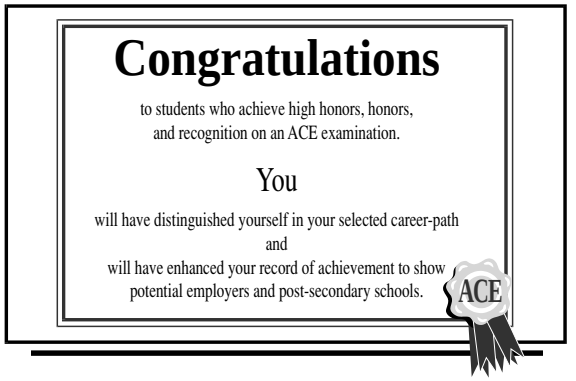
Results & Student Recognition

Written-response items from the ACE examinations are scored in the summer by teachers in related subject areas from across the state. Individual student results are sent to school districts in the fall.

Students who do well on their ACE examination receive state recognition for achieving one of three levels: high honors, honors, and recognition.

Recognition from the California Department of Education includes:

- state award of ACE Academic Excellence
- record of achievement on transcript
- honor roll banner for school
- ACE insignia on diploma for recipients of honors and high honors



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Thank you to all of the students, teachers, school officials, representatives of higher education, and representatives of industry who have contributed to the development of the Assessments in Career Education (ACE). The ACE examinations are voluntary and rely on your cooperation and continuing support. Students contribute by making their best effort on the examinations. Teachers prepare students and encourage their success. School officials provide support by registering their districts and schools for the ACE examinations, acknowledging the importance of these career areas and understanding the need to recognize student achievement. Higher education and industry representatives ensure that the content of the examinations provides an appropriate foundation for further education, training, and work in a related career area.

We wish to acknowledge the members of the development and scoring leadership teams for their contributions to the ACE in Agricultural Core.

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